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Zoran Petrovic

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BOULDER, CO 80301

EXAMINER

NILAND, PATRICK DENNIS

ART UNIT

PAPER NUMBER

1714

MAIL DATE

DELIVERY MODE

09/12/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

09/928,579

Applicant(s)

PETROVIC ET AL.

Examiner

Patrick D. Niland

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 July 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 and 29-92 is/are pending in the application.
- 4a) Of the above claim(s) 84-92 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-27 and 29-83 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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1. A request for continued examination under 37 CFR 1.114 was filed in this application after appeal to the Board of Patent Appeals and Interferences, but prior to a decision on the appeal. Since this application is eligible for continued examination under 37 CFR 1.114 and the fee set forth in 37 CFR 1.17(e) has been timely paid, the appeal has been withdrawn pursuant to 37 CFR 1.114 and prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on 7/24/07 has been entered.

The amendment of 7/24/07 has been entered. Claims 1-27 and 29-92 are pending. Claims 84-92 were and are withdrawn as being drawn to a non-elected invention. The restriction continues into the Request for Continued Examination since the RCE is required to be directed to the same invention and is not a new application.

2. Claims 1-27, 29-38, and 52-83 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

A. The modification of the newly recited range of low molecular weight polyol with "about" is new matter as "about" does not find basis in the originally filed specification. The portion of the range from greater than 10 to about 15 pph is new matter as it does not find basis in the originally filed specification for all of the low molecular weight polyols encompassed because glycerine does not provide basis for all low molecular weight polyols.

3. Claims 29-30 and 72-73 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is

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required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. These claims ultimately depend from claims which limit the claimed crosslinker to about 1 to about 15 pph. These claims broaden that range and thereby do not further limit the claims from which they depend.

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claims 1-27 and 29-83 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-12 of U.S. Patent No.

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6686435. Although the conflicting claims are not identical, they are not patentably distinct from each other because the patented claims encompass the instantly claimed invention by their use of the broad term filler which encompasses the aggregate of the instant claims. Furthermore, silica is used in the instant claims as the aggregate and is specifically claimed by the patentee (claim 3). The use of antifoam shows that the patentee removes entrained air from the mixture. It would have been obvious to one of ordinary skill in the art at the time of the instant invention to use vacuum to aid in the removal of bubble because it is well known to also use vacuum to remove entrained air and they are known to weaken the final product. The reaction of the patented claims falls within the scope of "cured" of the instant claims. The silica must be bonded to the polyurethane of the patentee since the reaction mixture of the patentee is that of the instant claims. The compositions of the prior art contain the same ingredients as those of the instant claims and therefore must also be "concrete" within the meaning of the term as it is used in the instant claims. There is no recited meaning of concrete such that this term distinguishes the patented composition from that of the instant claims. The patentee's claim clearly states "at least about a 2:1 weight ratio" of silica to the polyol which encompasses the instantly claimed amount of "aggregate composition". The portion of the patented specification argued is noted but the claim of the patentee is also part of the specification and the claimed range is all that the ordinary skilled artisan would need to enable using the instantly claimed amounts of aggregate.

For the reasons stated above, the instantly claimed invention is obvious over the patented claims and there is no showing that is commensurate in scope with the cited prior art and the instant claims of unexpected results. There is no probative evidence that the instant claims could not have been filed at the time the patented claims were filed. Silica is a species of the genus

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aggregate of the instant claims and as such anticipates the instantly claimed aggregate. The polyurethane of the patented claims and the instant claims fall within the scope of each other. The patented claims require "at least about a 2:1 weight ratio" of silica to polyol of which the polyurethane is approximately the same amount as the polyol it is made with. 30 wt % polyurethane and 70 weight percent aggregate is 2.3:1 aggregate to polyurethane which is "at least about a 2:1 weight ratio" due to the recitation of "about" in the patented claims. The instant claims are thus obvious over those of the patent because the instantly claimed language falls within the scope of that of the patentee. There is not a showing of unexpected results for any range within a range of the instant fact situation. The filled polyurethane claims of the patentee are not limited to electrical components and encompass all other compounds as they recite "comprising" and "filler" (patented claim 3). It is not seen that pea gravel nor any other filler of the instant claims are excluded from insulators as polymer filled with such a filler would necessarily be insulating and hard as is required of many such insulators, e.g. the ceramic insulators of high tension connections. "Concrete" of the instant claims is not seen as giving any further meaning to the instant claims than the recited ingredients which follow after "comprising". Molding such "concrete" into electroinsulators is not excluded by "concrete". Arguments over the limited examples of the patentee are not persuasive as the patent is not required to be a blue print of the invention and is not even required to have examples. There is no evidence that "concrete" is different in kind than the electrical insulators of the patentee. Furthermore, the composition claims are not limited to insulators and are no different than the instant claims in that the patented claims encompass the instant claims and as such are not non-

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analogous art as both relate to mixtures of polyurethane and aggregate. The proper comparison is not with traditional cement and limestone but with the compositions of the patentee.

The instant claims 39-50 do not require the instantly claimed crosslinker to be different from the vegetable oil polyol and the polyol of the patentee contains some amount of tri or higher functional polyol which will crosslink the polyurethane of the patented claims and which falls within the scope of the "low molecular weight polyol" crosslinker of the instant claims. The instant specification does not define "low molecular weight". Polymerizations are well known to give molecules of various molecular weights as evidenced by the concept of average molecular weight in polymer chemistry. Any amount of the patentee's claimed polyols can be said to be the low molecular weight polyol of the instant claims, including the amounts of the instant claims. The applicant's arguments therefore do not apply to these claims. There is no probative evidence that the prior art polyol does not contain the instantly claimed amount of low molecular weight polyol. The instant claims 1-27, 29-38, and 51-83 no longer recite "effective for increasing" various claimed properties. It is noted that the components of the patentee encompass polyfunctional polyols and polyisocyanates (column 9, lines 34-57, column 10, lines 51-64 with "crosslinking" of line 63 being particularly noted) as the patentee's claimed invention is defined by the enabling specification. Thus, the polyols and polyisocyanates with more than 2 functional groups give crosslinking and are therefore "crosslinkers". It is noted that these polyfunctional compounds are part of a mixture of compounds and therefore a portion can be thought of as polyol or polyNCO per se and the remainder as "crosslinker" per se. The crosslinking achieved by the patentee using either polyol and/or polyNCO of functionality greater than 2 will increase the molecular weight of the polymer via crosslinking by definition,

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make a three dimensional network of molecules by definition and a function of the reactants used, the presence of filler and the accompanying increase in molecular weight will necessarily and inherently give an increase in the claimed properties over the corresponding linear and unfilled polyurethanes of the patentee. Note the polymer textbook, i.e. well known, relationship of molecular weight to modulus. The increase in modulus is expected to give increased physical properties such as those claimed. Addition of hard filler is expected to increase the overall hardness of the compositions, e.g. one of the well known purposes of "filler".

The polyol of the claims of the patentee is going to be a mixture of materials necessarily by definitions of "degree of polymerization" and the average concepts in polymers such as "average molecular weight" and "average functionality". As such there will be different molecules in the mixtures resulting from making the polyol of the patented claims. The lower molecular weight fraction such that the disclosure of page 19 of the instant specification discussed in the applicant's arguments is met by definition of average molecular weight regarding such polymeric moieties falls within the scope of the low molecular weight polyol as well as any residual polyols such as glycerine from the reactions involved in making the patentee's claimed polyols falls within the scope of the instant claims which recite no amounts of the low molecular weight polyols. It is expected that the reactions to give the vegetable oil based polyol of the patented claims, such as hydroxylation and epoxidation of the oils of the patented claims, coupled with the fact that polymerizations never procede to completion will leave residual glycerine, in the relatively broad instantly claimed amounts, in the reaction used to form the vegetable oil based polyols of the patented claims from removal of the fatty acids from the

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glycerine in the di and triglycerides inherent in such oils when these compounds are treated with the reactants and reaction conditions of the patentee. No evidence to the contrary is seen.

The compositions of the instant claims are obvious over those of the patented claims for the reasons stated above and this rejection is maintained.

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-7, 9-11, 13-16, 20-27, 35-52, 54-60, 63, 67-74, 78-81, and 83 are rejected under 35 U.S.C. 102(b) as being anticipated by US Pat. No. 2902388 Szukiewicz.

The patentee discloses polyurethane cement falling within the scope of the instant claims at page 1, column 1, lines 20-71, particularly 35-46 which encompasses the instantly claimed amount of aggregate where the hydraulic cement is the aggregate and the instantly claimed low molecular weight polyol crosslinker based on the definition of average molecular weight and degree of polymerization as the polyol mixture disclosed here will necessarily have polyols falling within the scope of the instantly claimed low molecular weight polyol by definition of these terms. It is also not seen that such polyols are removed from the reaction mixture of the patentee. See page 1, column 2, lines 1-71, particularly 1-25 and 40-50 of which soya, tung and linseed are mentioned in the instant claims; column 3, lines 1-75, particularly 8-10 and 36-45;

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column 4, lines 1-75, particularly 1-4, 39-42, and 61-68; and the remainder of the document.

The limitations of claims 9-11 and 13-14 and related claims would appear to be encompassed by the polyol molecular weights, the relationship of viscosity to molecular weight via "viscosity average molecular weight" and chemistries of the patentee. The fillers of claims 20-27 and other related claims appear to be those necessarily in hydraulic cement of the patentee as encompassed by "Portland cement" of the patentee's example 3. Column 5, lines 66-73 shows that the free NCO groups will react with ambient moisture during cure to give foaming of the instant claim 84. The polyol of the patentee contains the instantly claimed amount of low molecular weight polyols. See column 4, lines 2-4 for example. The disclosed oils of column 2, lines 42-50 are known to be mixtures of glycerides, of which any small amount of polyols thereof can be said to be the low molecular weight polyols of the instant claims. The claims do not require the low molecular weight polyol to have half the molecular weight of the vegetable oil based polyol. It is not seen that some small amount of the remainder of the glyceride mixture of the patentee is not glycerine in the amounts of the instant claims, which is expected since glycerine is a metabolite of the things that make the glycerides and will result from hydrolysis of the glycerides which occurs naturally. No probative evidence to the contrary is seen. This rejection is therefore maintained.

9. Claims 1-7, 9-11, 13-16, 20-27, 35-60, 63, 67-74, and 78-83 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Pat. No. 2902388 Szukiewicz.

The patentee discloses polyurethane cement falling within the scope of the instant claims at page 1, column 1, lines 20-71, particularly 35-46 which encompasses the instantly claimed amount of aggregate where the hydraulic cement is the aggregate and the instantly claimed low

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molecular weight polyol crosslinker based on the definition of average molecular weight and degree of polymerization as the polyol mixture disclosed here will necessarily have polyols falling within the scope of the instantly claimed low molecular weight polyol by definition of these terms. It is also not seen that such polyols are removed from the reaction mixture of the patentee. See page 1, column 2, lines 1-71, particularly 1-25 and 40-50 of which soya, tung and linseed are mentioned in the instant claims; column 3, lines 1-75, particularly 8-10 and 36-45; column 4, lines 1-75, particularly 1-4, 39-42, and 61-68; and the remainder of the document. The limitations of claims 9-11 and 13-14 and related claims would appear to be encompassed by the polyol molecular weights, the relationship of viscosity to molecular weight via "viscosity average molecular weight" and chemistries of the patentee. The fillers of claims 20-27 and other related claims appear to be those necessarily in hydraulic cement of the patentee as encompassed by "Portland cement" of the patentee's example 3. Column 5, lines 66-73 shows that the free NCO groups will react with ambient moisture during cure to give foaming of the instant claim 84. The polyol of the patentee contains the instantly claimed amount of low molecular weight polyols. See column 4, lines 2-4 for example. The disclosed oils of column 2, lines 42-50 are known to be mixtures of glycerides, of which any small amount of polyols thereof can be said to be the low molecular weight polyols of the instant claims. The claims do not require the low molecular weight polyol to have half the molecular weight of the vegetable oil based polyol. It is not seen that some small amount of the remainder of the glyceride mixture of the patentee is not glycerine in the amounts of the instant claims, which is expected since glycerine is a metabolite of the things that make the glycerides and will result from hydrolysis of the glycerides which occurs naturally. No probative evidence to the contrary is seen.

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It would have been obvious to one of ordinary skill in the art at the time of the instant invention to use the instantly claimed combinations of ingredients and amounts thereof mixed by the methods of the instant claims from the disclosure of the patentee because they would have been expected to give the properties described by the patentee and the instantly claimed inventions are broadly encompassed by the patentee such that the instantly claimed inventions would have been predictable to the ordinary skilled artisan from the disclosure of the patentee at the time of the instant invention given the high level of skill in the polyurethane art. It would have been obvious to one of ordinary skill in the art at the time of the instant invention to subject the compositions of the patentee to vacuum to degas them so as to avoid the problems of bubbles that cause them to be undesired as shown by column 5, lines 66-72 of the patentee and vacuum is a conventional means for degassing polymeric compositions.

This rejection is therefore maintained.

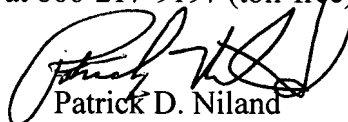
10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick D. Niland whose telephone number is 571-272-1121. The examiner can normally be reached on Monday to Thursday from 10 to 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan, can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

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system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Patrick D. Niland
Primary Examiner
Art Unit 1714